Chakrit Srinangyam 2009: Quantitative Feedback Control of a Two-Link Robot Manipulator. Master of Engineering (Mechanical Engineering), Major Field: Mechanical Engineering, Department of Mechanical Engineering. Thesis Advisor: Mr. Withit Chatlatanagulchai, Ph.D. 91 pages.

PID controller, normally used in industry, does not require mathematical model. Some techniques design on fixed model without taking uncertainty into consideration. Since the robot's parameters change during operation, for example, lifting varying payload, the controller designed from a fixed model normally delivers low performance. This paper presents a controller based on the quantitative feedback theory, which designs a controller in the frequency domain. This method is suitable for uncertain plant with external disturbance. Controller design for multi-input-multi-output (MIMO) system is always difficult because the coupling between inputs to outputs. We divide the design into two steps, for two sequential SISO systems. We are able to reject the disturbance and track desired trajectories accurately. Simulation and experimental results confirm the controller's effectiveness.

_____   _____   ___ / ___ / ___
      Student's signature   Thesis Advisor's signature